

CLAIMS:

1. An engine, comprising:

a cylinder block having a cylinder;

5 a cylinder head attached to the cylinder block, wherein
the cylinder head has an inner wall that closes an opening of
the cylinder;

at least one intake valve provided in the cylinder head;

10 at least one exhaust valve provided in the cylinder head;

and

an injector provided in the cylinder head, wherein the
injector injects fuel into the cylinder,

wherein the inner wall of the cylinder head has at least
two valve openings, an injection port, and a notch, wherein

15 each valve opening corresponds to one of the intake and
exhaust valves, and is opened and closed by the corresponding
valve, wherein fuel injected by the injector passes through
the injection port, wherein the notch is formed in a part of
the inner wall that defines the injection port, and wherein
20 the notch prevents fuel injected by the injector from
interfering with the cylinder head, and

wherein, when the inner wall is viewed along an axis of
the cylinder, a line that passes through a center of the
injection port and a center of one of the valve openings that

25 is adjacent to the injection port, or the center of an
adjacent valve opening, is defined as a first line, and a line
that is perpendicular to the first line is defined as a second
line, and wherein, when the inner wall is divided into
sections by the second line, the notch is located in the
30 section in which the adjacent opening exists, and the notch is
displaced from the first line.

2. The engine according to claim 1, wherein, when the
inner wall is viewed along the axis of the cylinder, the notch
35 is oriented from the injection port toward a space between the

first line and the second line, and wherein the injector injects fuel along the notch.

3. The engine according to claim 1, wherein the injector
5 has a fuel injection portion that is directed to the injection port, and wherein the fuel injection portion is recessed in the cylinder head with respect to the inner wall.

4. The engine according to claim 1, wherein the notch is
10 one of a plurality of notches.

5. The engine according to claim 1, wherein the adjacent valve opening is one of a pair of adjacent valve openings, and wherein the notch extends from the injection port and is
15 parallel to a line that passes through centers of the adjacent valve openings.

6. The engine according to claim 1, wherein the adjacent valve opening is one of a plurality of adjacent valve
20 openings, and wherein the notch extends from the injection port toward a space between the adjacent valve openings.

7. The engine according to claim 1, wherein the notch is formed like a slit.
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8. The engine according to claim 1, wherein the injection port is located in a part of the inner wall that is close to the periphery of the cylinder.

30 9. A cylinder head having an inner wall that closes an opening of a cylinder of an engine,

wherein an injector is provided in the cylinder head, wherein the injector injects fuel into the cylinder, wherein the inner wall of the cylinder head has at least two valve
35 openings, an injection port, and a notch, wherein one of the

valve openings is opened and closed by at least one intake valve, and the other valve opening is opened and closed by at least one exhaust valve, wherein fuel injected by the injector passes through the injection port, wherein the notch is formed

5 in a part of the inner wall that defines the injection port, and wherein the notch prevents fuel injected by the injector from interfering with the cylinder head, and

wherein, when the inner wall is viewed along an axis of the cylinder, a line that passes through a center of the

10 injection port and a center of one of the valve openings that is adjacent to the injection port, or the center of an adjacent valve opening, is defined as a first line, and a line that is perpendicular to the first line is defined as a second line, and wherein, when the inner wall is divided into

15 sections by the second line, the notch is located in the section in which the adjacent opening exists, and the notch is displaced from the first line.

10. The cylinder head according to claim 9, wherein, when

20 the inner wall is viewed along the axis of the cylinder, the notch is oriented from the injection port toward a space between the first line and the second line, and wherein the injector injects fuel along the notch.

25 11. The cylinder head according to claim 9, wherein the notch extends inward in the cylinder.

12. The cylinder head according to claim 11, wherein the

30 injector has a fuel injection portion that is recessed in the cylinder head with respect to the inner wall, and wherein the notch reaches the fuel injection portion.

13. The cylinder head according to claim 9, wherein the notch is one of a plurality of notches.

14. The cylinder head according to claim 9, wherein the adjacent valve opening is one of a pair of adjacent valve openings, and wherein the notch extends from the injection port and is parallel to a line that passes through centers of
5 the adjacent valve openings.

15. The cylinder head according to claim 9, wherein the adjacent valve opening is one of a plurality of adjacent valve openings, and wherein the notch extends from the injection
10 port toward a space between the adjacent valve openings.

16. The cylinder head according to claim 9, wherein the notch is formed like a slit.

15 17. The cylinder head according to claim 9, wherein the injection port is located in a part of the inner wall that is close to the periphery of the cylinder.